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chologists and libraries to number the "Jahrbuch" among their possessions. One suggestion may be permitted: that the future numbers should contain an exact statement of the date of publication, which could be relied on in matters of priority, a matter of some importance in these days of rivalry in research.—*Wm. H. Dall.*

PROCEEDINGS OF THE MINERALOGICAL AND GEOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES 1880–1881. NO. 2.—This is a neatly printed little pamphlet of thirty-eight pages, containing the notes on subjects germane to the objects of the section, according to the title, during the years 1880–1881, and (to judge from Mr. Rand's last contribution on the volume C_6 of the 2d Geological Survey's publication, which did not appear till late in 1882), for this latter year also.

There are in reality but thirty-three pages devoted to science, the remaining five being filled with catalogues of members, names of authors, &c., and of these thirty-three, fourteen are of that short desultory character which make up what might be called a memorandum book of apparent facts which may one day be sifted of errors and usefully embodied into some systematic work. It is rather curious that with such a large array of amateur and professional workers in the line of these allied sciences, nineteen pages of octavo should cover the more or less completed work for three years.

There are thirty-six papers and short observations in all, of which fourteen are by Professor H. C. Lewis (secretary), and five by Mr. Theo. D. Rand (director), the latter including the only two moderately long papers in the pamphlet. These are, in reality, the only parts of the volume which can be reviewed, and it is proposed to devote a few words to them. The first of these papers is called, "Notes on the Geology of Radnor and vicinity," and is mainly a criticism of Mr. Chas. E. Hall's paper on the "Relations of the crystalline rocks in Eastern Pennsylvania" (Proc. Am. Phil. Soc., Jan. 2, 1880). Speaking of the serpentine, Mr. Rand says, that between the outcrops of the rock north-west of Radnor station and that near the Paoli, no outcrops of serpentine have been noted.

Mr. Rand doubtless refers to the description of serpentine areas in Rogers' final report, Vol. 1, p. 168, when he skips from his second belt of this rock (south of the narrow limestone trough of the upper part of Gulf creek) to his third belt near the Paoli. Mr. Hall had no occasion to mention the occurrences outside of Delaware and Montgomery counties in C_6, nevertheless in the as yet unpublished but stereotyped C_4, he does describe the outcrops in Easttown township, Chester county. These outcrops could not possibly have escaped the *observation* of any geologist who has been in the township at all. Mining operations were conducted there anterior to the publication of Rogers' report, and it seems more probable to suppose that mention of them was in some way omitted in the course of arranging his MSS for the press.[1] They are marked in Frazer's unissued map, which was colored in 1880.

Mr. Rand is right, in a sense, in insisting that the outcrops of serpentine should be represented by detached areas rather than by a continuous line, and Mr. Hall himself has been a notable champion for this kind of geological *Realism*, but it may be carried too far, and if this system had been uniformly adopted by all geologists, no continuous structure of large areas would ever have been attained. In the present instance it is almost as much a matter of judgment as of observation where the limits of the separate serpentine areas should be placed, for if the surface be minutely examined and its indications alone regarded, each of these areas will show numerous interruptions of a few feet or yards of continuity both *with* and *across* the strike, where the serpentinous matter is replaced by clastic rocks. In fact, much of the area called serpentine has little to ally it to that mineral but its blasting influence on vegetation, the rocks being of the most heterogeneous and nondescript character.

Mr. Rand complains that Mr. Hall makes no mention of the Potsdam sandstone which, following Rogers, he notes south of the South Valley hill, beyond the signalization of "sandy beds." We think that Mr. Hall is entirely right in this, for the reason that the hypothesis that these beds of white sand near the King of Prussia, for example, may easily have resulted from the decomposition of any of a great variety of rocks not Potsdam or any other sandstones. It is true that it would not be difficult to formulate a structure which would bring in the Potsdam sandstone at that point, whether the view that the rocks are Hudson river or that they are Huronian be accepted, since all agree that the Potsdam is represented in the same relative position on the other side of the river and not far off. To Mr. Hall there would be no greater difficulty in joining the Potsdam and the South Valley Hill rocks here, than in joining the Potsdam and the Chestnut Hill belt at the last named locality. On the other side of the question it would simply shift a little to the westward the intersection of the valley axis and the line of fault, which Frazer supposes to bring up the lower series to the present surface. The observation of the intersection of the Serpentine belt by the trap which has a more northerly trend in Easttown, is interesting but not new. The second paper, called "Note on the Geology of Lower Merion and vicinity," which is at the end of the pamphlet, is a criticism of Mr. Hall's volume C_6 of the 2d Geological Survey of Penna. series. The first view that Mr. Rand expresses is a "regret that the publication was not delayed until the adjacent parts of Delaware county were examined." This had been done before the issue of C_6, and we understand that the chief geologist is almost ready to issue C_5, which is to be devoted to Delaware county.

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[1] In the copy of Rogers' final geological maps, before the writer, there appears to be a color indication of one of these detached Serpentine masses near the Spread Eagle tavern, in nearly a correct position, but of another exposure further west there is no indication. This, however, is not perfectly satisfactory evidence, as the colors on the final map fade differently in different copies, and the color for the serpentine especially is difficult to distinguish from accidental discoloration.

The criticisms as to location of the areas of serpentine, which Mr. Rand makes, are doubtless just, within the qualification previously made, as a large portion of these outcrops are but a short distance from his residence, and it is not likely that he can be deceived about a subject to which he has given so much attention. At the same time it must not be forgotten that what one observer would regard as evidence of a Serpentine outcrop, another would not. In this respect Serpentine outcrops occupy almost a unique position. It would seem to be only thus that such wide divergences as are here noted are explicable. Professor Lesley's remark that "the Serpentine belt of Bryn Mawr instead of passing in a straight line south-west * * * swings around southward in a curve towards Chester," &c., which evoked criticism three months ago from another source,[1] is here also demurred to, but as if it were a remark of Mr. Hall, whereas Mr. Hall nowhere appears to entertain such a view. The mistake which Mr. Rand appears to have made as to the true authorship of the remark, while quite natural, is a good illustration of one of the evils which result from too much editing and commenting by the superior officer of a geological survey.

The last two pages contain the real gist of the paper, and merit, together with the map accompanying, a more detailed study.

Mr. Rand regards what he terms the "Eurite," south of the Chester valley, "almost undoubtedly Potsdam sandstone," but the difficulty in the case is to account for outcrops of Potsdam sandstone of such widely different character existing so near together, across the strike, for forty miles and more. The North-Valley-hill, from Pomeroy to the Schuylkill, and beyond there, is composed of a white hard sandstone, making precipitous cliffs, poor vegetation and dazzling white hills. The same rocks turn the eastern end of the synclinal near Willow Grove, and come almost to the Schuylkill river as white sandstone. This point is marked by a line of trap which of itself is presumptive evidence of a fissure, and probably of a fault, and this line of trap continues far beyond the spot of which we are now talking; yet Mr. Rand would have us believe that the South-Valley-hill and the North-Valley-hill belong to the same formation. It is true that part of the difficulty is disposed of in assuming that to the Potsdam as to the Primal of Rogers belong under and overlying schists different from the sandstone proper; but this will remove only part of the difficulty, for a difference of horizon in the same formation at so short a distance would mean a fault, and if a fault is once supposed it is easier to imagine it several thousand feet in extent, if this will account for other phenomena such as the absence of the Potsdam where it ought to be on the northern edge of the southern belt of limestones; than a few hundred feet, leaving this and kindred difficulties to be disposed of by separate hypotheses.

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[1] The Horizon of the South-Valley-Hill Rocks, Frazer, Prcc. A. P. S., Dec. 15, 1882.

That the syenite south of the South-Valley-hill is an anticlinal is very probable, since the whole structure of the South hill to the Octoraro creek is anticlinal; but that the "Eurite" which occurs north of the anticlinal and south of the South Valley hill represents the Potsdam, we think "almost without question" is not the case, for the reason among many others that the absence of the white sandstone between it and the valley would need accounting for.

The map which accompanies the paper is quite obscure, in spite of the explanations in the title, and it is difficult to ascertain whether the section given lies in Chester or Delaware county. One other feature of the paper is natural perhaps to communications intended for small bodies of scientific men, who become more familiar with each other's works than with those of the world outside. This may acount for an absolute silence as to the thinking and working of any soul on these very interesting and intricate questions except Professors Rogers and Lewis, Mr. Hall, whose work forms the target for this last contribution, and Mr. Rand who shoots.[1]—*P. F.*

RECENT BOOKS AND PAMPHLETS.—Truck Farming at the South, a guide to the raising of vegetables for Northern markets. By Dr. A. Oëmler. New York, Orange Judd & Co. From the publishers.

Final Causes. By Paul Janet, member of the Institute. Translated from the second edition of the French by W. Affleck, B.D. New York, Chas. Scribner's Sons.

Jamaica. Annual report of the Public Gardens and Plantations for the year ending Sept. 30, 1882. By D. Morris, M.A., director. Kingston, 1883. From the author.

The Storage of Electricity. By H. L. Greer. New York, 1883. From the author.

The Scientific Roll and Magazine of Systematized Notes. Climate. Vol I, Part II. Aqueous Vapor. London, 1883. From the Conductor, A. Ramsay, F.G.S.

Art Institute Lecture on Artistic Anatomy and the sciences useful to the Artist. By S. V. Clevenger, A.M., M.D. Chicago, 1883. From the author.

A study of the poison of the *Heloderma suspectum*, or Gila monster. By Drs. S. W. Mitchell and E. T. Reichert. Philadelphia Medical Times, March 10, 1883.

Sur un Saccodon d'espèce nouvelle provenant de l'Equateur. Par M. Al. Thominol. Ext. du Bulletin de la Societe Philomathique de Paris, 12 aout, 1882. From the author.

Ninth Annual Report of the Zoological Society of Cincinnati, 1882.

The Selective Absorption of Solar Energy. By S. P. Langley. Ext. from the Amer. Jour. of Science, March, 1883. From the author.

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[1] Mr. Hall sends a reply to Mr. Rand's criticism, which will be printed shortly.